

**LISTING OF THE CLAIMS**

1. (Currently Amended) A system for de-interleaving data in a wireless receiver comprising:  
a single memory buffer to store the data divided into logical partitions representing radio frame blocks and physical channel blocks; and  
means, coupled to said memory buffer, for performing a first and second de-interleaving of the data stored in said memory buffer, wherein said means includes means for reading and writing the data to the memory buffer in connection with said first and second de-interleaving,  
~~wherein said memory buffer stores the data, and~~  
~~wherein said means performs said first de-interleaving and said second de-interleaving as the stored data is read from said memory buffer~~  
wherein said means applies a first portion of a second de-interleaving pattern as data is written to the single memory buffer, and  
wherein said means applies a second portion of said second de-interleaving pattern as data is read from the single memory buffer.
2. (Cancelled)
3. (Currently Amended) The system of claim 1, wherein said means performs said first de-interleaving as the stored data is read from said single memory buffer.
4. (Currently Amended) The system of claim 1, wherein the data comprises radio frames, said single memory buffer comprises a plurality of radio frame blocks, and said means causes said radio frames to be stored in said radio frame blocks.
5. (Original) The system of claim 4, wherein the data is transmitted over one or more physical channels, wherein each of said radio frames comprises a physical channel frame associated with each physical channel, each of said radio frame blocks comprises a physical channel block associated with each physical channel, and said means causes said physical channel frames to be stored in said physical channel blocks.

6. (Currently Amended) A receiver that receives data via a wireless link, said receiver comprising:

~~a demodulator coupled to the wireless link;~~

a decoding/demultiplexing unit, ~~coupled to said demodulator, that includes~~ comprising:

a memory buffer to store the data, and

means, coupled to said memory buffer, for performing a first and second de-interleaving of the data, wherein said means includes means for reading and writing the data to the memory buffer in connection with said first and second de-interleaving, and

~~a medium access control layer coupled to said decoding/demultiplexing unit,~~

~~wherein said memory buffer stores the data, and~~

~~wherein said means performs said second de-interleaving as the stored data is read from said memory buffer~~

wherein said means applies a first portion of a second de-interleaving pattern as the data is written into the memory buffer, and

wherein said means applies a second portion of said second de-interleaving pattern as the data is read from the memory buffer.

7. (Original) The receiver of claim 6, wherein said memory buffer comprises a plurality of radio frame blocks.

8. (Original) The receiver of claim 7, wherein each of said radio frame blocks comprises a physical channel block.

9. (Currently Amended) A system for de-interleaving data in a wireless receiver comprising:

a memory buffer; and

a read/write unit, coupled to said memory buffer, wherein said read/write unit is configured to perform a first and second de-interleaving of the data,

~~wherein said memory buffer stores the data, and~~

~~wherein said read/write unit performs said second de-interleaving as the stored data is read from said memory buffer~~

wherein the read/write unit applies a first portion of a second de-interleaving pattern as the data is written to the memory buffer, and

wherein the read/write unit applies a second portion of said second de-interleaving pattern as the data is read from the memory buffer.

10 (Cancelled)

11. (Currently Amended) A method for de-interleaving data in a wireless receiver comprising:

applying a first portion of a second de-interleaving pattern as the data is written into a memory buffer;

applying a second portion of said second de-interleaving pattern as the data is read from the memory buffer; and

~~performing a second de-interleaving as the data is read from a memory buffer; and~~  
~~performing a first de-interleaving on the data as data is read from said memory buffer.~~

12. (Original) The method of claim 11 further comprising:

reassembling one or more physical channels from the data stored in said memory buffer;

performing a second removal of discontinuous transmission indication bits from the data stored in said memory buffer;

demultiplexing the data stored in said memory buffer into a plurality of transport channels; and

reassembling transport blocks from the data stored in said memory buffer, wherein the data comprises radio frames.

13. (Currently Amended) A method comprising:

demodulating data received via a wireless link;

storing the demodulated data in a memory buffer;

writing said data to said memory buffer according to a first portion of a second de-interleaving pattern;

reading said data from said memory buffer according to a second portion of said second de-interleaving pattern; and

reading said data from said memory buffer according to a first de-interleaving pattern, forming an output data stream; and

decoding said output data stream.

14. (Previously Presented) The method of claim 13 further comprising:  
reassembling one or more physical channels from the data stored in said memory buffer;  
performing a second removal of discontinuous transmission indication bits from the data stored in said memory buffer;

demultiplexing the data stored in said memory buffer into a plurality of transport channels; and

reassembling transport blocks from the data stored in said memory buffer, wherein the data comprises radio frames.

15. (Currently Amended) A system for de-interleaving data received at a wireless receiver comprising:

a demodulator configured to demodulate the data;

a memory buffer, coupled to said demodulator, to store said data; and

means, coupled to said memory buffer, for performing a first and second de-interleaving of the data stored in said memory buffer, wherein said means includes means for reading and writing the data to the memory buffer in connection with said first and second de-interleaving,

~~wherein said memory buffer stores the data, and~~

wherein said means performs a first portion of said second de-interleaving as the data is written into the memory buffer and said means performs a second portion of said second de-interleaving as the stored written data is read from said memory buffer.

16. (Cancelled)

17. (Currently Amended) The system of claim 15, wherein said means performs said first de-interleaving as the stored written data is read from said memory buffer.